

We claim:

1. A control method for use with an internal combustion engine and an accessory device, the engine and device coupled to a vehicle, the method comprising:

5 determining when the device is cycling between an engaged state where the engine is coupled to the device and a disengaged state where the engine is de-coupled from the device;

engaging the device based at least on an operating condition when the device is disengaged; and

10 wherein said engine operating condition is a speed ratio across a torque converter coupled to the engine.

2. The method recited in claim 1, wherein said engaging comprises engaging the device based at least on said
15 operating condition when the device is disengaged greater than a predetermined duration; and

wherein said operating condition is a vehicle operating condition.

20 3. The method recited in claim 2, wherein said vehicle operating condition is when brakes coupled to the vehicle are activated.

4. The method recited in claim 2, wherein said vehicle operating condition is when an antilock braking system coupled to the vehicle is activated.

5 5. The method recited in claim 2, wherein said vehicle operating condition is when traction control is active.

6. A control method for use with an internal combustion engine and an air conditioning compressor, the engine and compressor coupled to a vehicle, the method comprising:

10 indicating when vehicle fuel economy can be increased by engaging the compressor based on an operating condition;

engaging the compressor in response to said indication when the compressor is disengaged greater than a predetermined duration; and

15 wherein said operating condition is when brakes coupled to the vehicle are activated.

7. The method recited in claim 6, when desired engine torque decreases greater than a preselected value.

8. A control method for use with an internal combustion engine coupled to a torque converter and an air conditioning compressor, the engine and compressor coupled to a vehicle, the method comprising:

- 5 indicating when the compressor can be engaged with minimal driver perception based on operating conditions; and
- engaging the compressor in response to said indication when the compressor is disengaged greater than a predetermined value and when the torque converter is unlocked.

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9. The method recited in claim 8, wherein said predetermined duration is a percentage of a disengaged duration of a cycle in which the compressor is engaged and disengaged due to an air conditioning system parameter.

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10. The method recited in claim 8, wherein said predetermined duration is a predetermined time.

11. The method recited in claim 8, wherein said
- 20 predetermined duration is a predetermined percentage of normal compressor duty cycle.

12. A control method for use with an internal combustion engine coupled to a clutch and an air conditioning compressor, the engine and compressor coupled to a vehicle, the method comprising:

- 5 indicating when the compressor can be engaged with minimal driver perception based on operating conditions when the clutch is disengaged; and
- engaging the compressor in response to said indication when the compressor is disengaged greater than a predetermined value.

13. An article of manufacture comprising:

a computer storage medium having a computer program encoded therein for use with an internal combustion engine and an air conditioning compressor, the engine and device coupled to a

5 vehicle having brakes, said computer storage medium comprising:

code for determining when the compressor is cycling between an engaged state where the engine is coupled to the compressor and a disengaged state where the engine is de-coupled from the compressor;

10 code for indicating when the brakes are actuated;

code for estimating a percentage disengaged duration of a cycle in which the compressor is engaged and disengaged due to an air conditioning system parameter; and

code engaging the compressor based at least on said
15 indication when said percentage disengaged duration is greater than a predetermined value.